

ABSTRACT

A rotary cone rock bit includes one or more hole cleaning nozzles and one or more bit cleaning nozzles. The hole cleaning nozzles of one drill bit define a projected fluid path disposed at a lateral angle of less than six degrees in order to achieve a large impingement pressure on the hole bottom. The bit cleaning nozzles of the same drill bit define a projected fluid path disposed at a lateral angle of at least six degrees in order to pass within 0.5 inches of the teeth on leading edge of the lagging roller cone. This results in a drill bit that both cleans the bottom hole and cleans cone inserts.